

## In the Specification

*Please replace paragraph [0001] with the following:*

### TECHNICAL FIELD

[0002] ~~The~~ This disclosure present invention relates to a process for recovering an optically active diacyltartaric acid by dissociating a salt of an amine and the optically active diacyltartaric acid.

*Please replace paragraph [0002] with the following:*

### BACKGROUND ART

[0003] Optically active diacyltartaric acids are compounds important as optical resolving agents for producing optically active amines important as raw materials of medicines. Recovering an optically active diacyltartaric acid from a diastereomer salt obtained in an optical resolution step, for recycled use of it, is essential for constructing a resource-saving industrial process. As processes for recovering an optically active diacyltartaric acid by dissociating a diastereomer salt of an optically active amine and the optically active diacyltartaric acid, known are a process wherein a diastereomer salt of (S)-1,2-propanediamine and dibenzoyl-D-tartaric acid is added to 9% hydrochloric acid aqueous solution, to precipitate dibenzoyl-D-tartaric acid which is then recovered by filtration {Japanese Patent No. 2712669 (Example 5)} and a process wherein a diastereomer salt of (S)-1,2-propanediamine and di-p-toluoyl-D-tartaric acid is added to 9% hydrochloric acid aqueous solution, to precipitate di-p-toluoyl-D-tartaric acid which is then recovered by filtration {Japanese Patent No. 2917495 (Example 5)}. However, if these processes are employed as they are, the diacyltartaric acid recovered by solid-liquid separation is likely to be aggregated as a block, and a step of grinding it before recycled use is necessary. Furthermore, if the diacyltartaric acid aggregated as a block is used as it is in an optical resolution step, it takes a long period of time till the salt of an amine and an

optically active diacyltartaric acid, essential for optical resolution, is formed. Because of these problems, an optically active diacyl-D-tartaric acid with good properties to allow recycled use cannot be recovered. Moreover, also known is a salt dissociation method wherein the diastereomer salt of (4aR, 8aR)-1-n-propyl-6-oxodecahydroquinoline and di-p-toluoyl-L-tartaric acid is treated by a diluted sodium hydroxide aqueous solution, and (4aR, 8aR)-1-n-propyl-6-oxodecabydro-quinoline is extracted with methylene chloride, while disodium di-p-toluoyl-L-tartrate is left in the water layer {JP6-70063B (Production Example 1)}. However, the document does not describe any process for recovering di-p-toluoyl-L-tartaric acid from disodium di-p-toluoyl-L-tartrate.

*Please replace paragraph [0003] with the following:*

[0004] ~~An object of this invention is~~ It would therefore be helpful to provide a process for industrially recovering an optically active diacyltartaric acid capable of being easily used in recycling, by dissociating a salt of an amine and the optically active diacyltartaric acid. ~~Another object is~~ It would also be helpful to provide a process for recovering an optically active diacyltartaric acid with good properties by dissociating a diastereomer salt of an optically active amine and the optically active diacyltartaric acid, obtained by optical resolution. [[A]] It would further ~~other object is~~ be helpful to provide a method for recycling the obtained optically active diacyltartaric acid into an optical resolution step.

*Please replace paragraph [0004] with the following:*

#### DISCLOSURE OF THE INVENTION SUMMARY

[0005] ~~The inventors~~ We studied intensively on the method for solving the above-mentioned problems, and as a result, arrived at the present invention method disclosed herein. That is, ~~this invention provides~~ we provide a process for recovering an optically active diacyltartaric acid from a salt of an amine and the optically active diacyltartaric acid in an acid aqueous solution, characterized

in that the optically active diacyltartaric acid is added beforehand in the acid aqueous solution. ~~This invention~~ We also provides said provide a process for recovering an optically active diacyltartaric acid, wherein the salt of an amine and the optically active diacyltartaric acid is a diastereomer salt obtained by optically resolving a racemic amine using the optically active diacyltartaric acid. Furthermore, ~~this invention provides we provide~~ a process for recovering an optically active diacyltartaric acid, comprising an optical resolution step for optically resolving a raw material containing a racemic amine and the optically active diacyltartaric acid and separating the diastereomer salt of an optically active amine and the optically active diacyltartaric acid respectively of one isomer type, a salt dissociation step for dissociating the obtained diastereomer salt into the optically active amine and the optically active diacyltartaric acid using an acid aqueous solution, and a recycling step for recovering the optically active diacyltartaric acid obtained in the salt dissociation step and recycling the recovered optically active diacyltartaric acid into the optical resolution step as a raw material of the optical resolution step, wherein the optically active diacyltartaric acid is added beforehand in the acid aqueous solution used in the salt dissociation step.

*Please replace paragraph [0005] with the following:*

The Best Mode for Carrying Out the Invention DETAILED DESCRIPTION

[0006] ~~In this invention, the~~ The salt of an amine and the optically active diacyltartaric acid, used as a raw material, can be any of a salt of an optically inactive amine and the optically active diacyltartaric acid, a diastereomer salt of a racemic amine and the optically active diacyltartaric acid, and a salt of an optically active amine and the optically active diacyltartaric acid. Furthermore, either a crystalline diastereomer salt obtained by optically resolving a racemic amine using an optically active diacyltartaric acid and filtering for separation or a diastereomer salt as an optical antipode contained in the filtered mother liquor can also be used. The optical purity of the amine contained in

the salt can be any value. Moreover, the amine is not especially limited, and examples of the optically inactive amine include benzylamine, cyclohexylamine, etc. The racemic amine is not especially limited either. Examples of it include aliphatic amines such as 1,2-diaminopropane, 3-aminobutane, 3-aminopentanenitrile and 2-cyclopropylamino-cyclohexanol, aromatic amines such as  $\alpha$ -naphthylethylamine,  $\alpha$ -phenylethylamine, 1-methyl-3-phenylpropylamine,  $\alpha$ -(p-chlorophenyl)ethylamine and  $\alpha$ -(toluylethyl)amine, and heterocyclic amines such as 3-aminopyrrolidine, 3-amino-1-benzylpyrrolidine, and 3-phenyl-1-propyl-piperidine.

*Please replace paragraph [0017] with the following:*

## EXAMPLES

[0017] ~~The present invention~~ This disclosure is described below in further [[in]] detail in reference to examples, but is not limited thereto or thereby.

*Please replace paragraph [0034] with the following:*

[0034] ~~According to this invention, a~~ An optically active diacyltartaric acid used as an optical resolving agent for optically resolving a racemic amine can be efficiently recovered. The recovered optically active diacyltartaric acid can be reused as a resolving agent for production of an optically active amine.